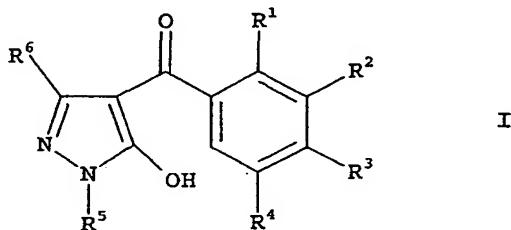


We claim:

1. A synergistic herbicidal mixture comprising

- 5       A) at least one 3-heterocyclyl-substituted benzoyl derivative of the formula I



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in which the variables have the following meanings:

R<sup>1</sup>, R<sup>3</sup> are halogen, C<sub>1</sub>-C<sub>6</sub>-alkyl, C<sub>1</sub>-C<sub>6</sub>-haloalkyl, C<sub>1</sub>-C<sub>6</sub>-alkoxy, C<sub>1</sub>-C<sub>6</sub>-haloalkoxy, C<sub>1</sub>-C<sub>6</sub>-alkylthio, C<sub>1</sub>-C<sub>6</sub>-alkylsulfinyl or C<sub>1</sub>-C<sub>6</sub>-alkylsulfonyl;

15

R<sup>2</sup> is a heterocyclic radical selected from the group: isoxazol-3-yl, isoxazol-4-yl, isoxazol-5-yl, 4,5-dihydroisoxazol-3-yl, 4,5-dihydroisoxazol-4-yl and 4,5-dihydroisoxazol-5-yl, it being possible for the six radicals mentioned to be unsubstituted or mono- or polysubstituted by halogen, C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-alkoxy, C<sub>1</sub>-C<sub>4</sub>-haloalkyl, C<sub>1</sub>-C<sub>4</sub>-haloalkoxy or C<sub>1</sub>-C<sub>4</sub>-alkylthio;

20

R<sup>4</sup> is hydrogen, halogen or C<sub>1</sub>-C<sub>6</sub>-alkyl;

R<sup>5</sup> is C<sub>1</sub>-C<sub>6</sub>-alkyl;

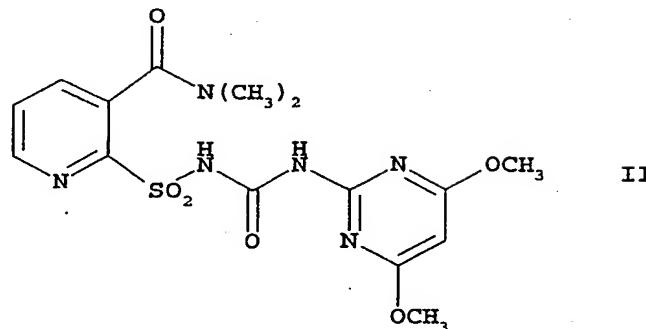
25

R<sup>6</sup> is hydrogen or C<sub>1</sub>-C<sub>6</sub>-alkyl;

30 or one of its environmentally compatible salts;

and

## B) the compound of formula II



5

or one of its environmentally compatible salts;

and,

- 10 C) at least one herbicidal compound from the group of the acetolactate synthase inhibitors (ALS), lipid biosynthesis inhibitors and photosynthesis inhibitors;

in a synergistically effective amount.

15

2. A synergistic herbicidal mixture as claimed in claims 1, comprising, as component A), a 3-heterocyclyl-substituted benzoyl derivative of the formula I, where R<sup>4</sup> is hydrogen.

- 20 3. A synergistic herbicidal mixture as claimed in any of claims 1 to 2, comprising, as component A), a 3-heterocyclyl-substituted benzoyl derivative of the formula I, where

25 R<sup>1</sup> is halogen, C<sub>1</sub>-C<sub>6</sub>-alkyl or C<sub>1</sub>-C<sub>6</sub>-alkylsulfonyl;

R<sup>3</sup> is halogen or C<sub>1</sub>-C<sub>6</sub>-alkylsulfonyl;

- 30 4. A synergistic herbicidal mixture as claimed in any of claims 1 to 3, comprising, as component A), a 3-heterocyclyl-substituted benzoyl derivative of the formula I, where

5           R<sup>2</sup> is a heterocyclic radical selected from the group: isoxazol-3-yl, isoxazol-5-yl and 4,5-dihydroisoxazol-3-yl, it being possible for the three radicals mentioned to be unsubstituted or mono- or polysubstituted by halogen, C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-alkoxy, C<sub>1</sub>-C<sub>4</sub>-haloalkyl, C<sub>1</sub>-C<sub>4</sub>-haloalkoxy or C<sub>1</sub>-C<sub>4</sub>-alkylthio.

10         5. A synergistic herbicidal mixture as claimed in any of claims 1 to 4, comprising, as component A), a 3-heterocyclyl-substituted benzoyl derivative of the formula I, where

15         R<sup>2</sup> is isoxazol-5-yl, 3-methyl-isoxazol-5-yl, 4,5-dihydro-isoxazol-3-yl, 5-methyl-4,5-dihydroisoxazol-3-yl, 5-ethyl-4,5-dihydroisoxazol-3-yl or 4,5-dimethyl-4,5-dihydroisoxazol-3-yl.

20         6. A synergistic herbicidal mixture as claimed in any of claims 1 to 5, comprising, as component A), 4-[2-chloro-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole.

25         7. A synergistic herbicidal mixture as claimed in any of claims 1 to 5, comprising, as component A) 4-[2-methyl-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole.

30         8. A synergistic herbicidal mixture as claimed in any of claims 1 to 7, comprising, at least three active ingredients, a 3-heterocyclyl-substituted benzoyl derivative of the formula I (component A) as claimed in claims 1 to 7, the compound of formula II (component B) and

35         C) at least one herbicidal compound from the groups C1 to C3:

C1 acetolactate synthase inhibitors (ALS) :

imidazolinones, pyrimidyl ethers, sulfonamides or sulfonylureas;

C2 lipid biosynthesis inhibitors:

5 anilides, chloroacetanilides, thioureas, benfuresate or perfluidone;

C3 photosynthesis inhibitors:

10 propanil, pyridate, pyridafol, benzothiadiazinones, di-nitrophenols, dipyridylenes, ureas, phenols, chloridazon, triazines, triazinones, uracils or biscarbamates;

or their environmentally compatible salts.

15 9. A synergistic herbicidal mixture as claimed in claims 1 or 8, comprising, as component C), at least one herbicidal compound from the groups C1 to C3:

C1 acetolactate synthase inhibitors (ALS) :

- imidazolinones:

imazapyr, imazaquin, imazamethabenz-methyl (imazame), imazamox, imazapic, imazethapyr or imazamethapyr;

- pyrimidyl ethers:

pyrithiobac-acid, pyrithiobac-sodium, bispyribac-sodium, KIH-6127 or pyribenzoxy;

- sulfonamides:

florasulam, flumetsulam or metosulam; or

- sulfonylureas:

30 amidosulfuron, azimsulfuron, bensulfuron-methyl, chlorimuron-ethyl, chlorsulfuron, cinosulfuron, cyclosulfamuron, ethametsulfuron-methyl, ethoxy-sulfuron, flazasulfuron, halosulfuron-methyl, imazosulfuron, metsulfuron-methyl, primisulfuron-methyl, prosulfuron, pyrazosulfuron-ethyl, rimsulfuron, sulfometuron-methyl, thifensulfuron-methyl, triasulfuron, tribenuron-methyl, triflusulfuron-methyl, N-[[[4-methoxy-6-(trifluoromethyl)-1,3,5-

triazin-2-yl]amino]-carbonyl]-2-(trifluoromethyl)-benzenesulfonamide, sulfosulfuron or idosulfuron;

C2 lipid biosynthesis inhibitors:

- 5 - anilides:  
anilofos or mefenacet;
- chloroacetanilides:  
dimethenamid, S-dimethenamid, acetochlor,  
alachlor, butachlor, butenachlor, diethyl-ethyl,  
10 dimethachlor, metazachlor, metolachlor, S-  
metolachlor, pretilachlor, propachlor, prynachlor,  
terbuchlor, thenylchlor or xylachlor;
- thioureas:  
butylate, cycloate, di-allate, dimepiperate, EPTC,  
15 esprocarb, molinate, pebulate, prosulfocarb,  
thiobencarb (benthiocarb), tri-allate or ver-  
nolate; or
- benfuresate or perfluidone;

20 C3 photosynthesis inhibitors:

- propanil, pyridate or pyridafol;
- benzothiadiazinones:  
bentazone;
- dinitrophenols:  
bromofenoxyim, dinoseb, dinoseb-acetate, dinoterb  
25 or DNOC;
- dipyridylenes:  
cyperquat-chloride, difenzoquat-methylsulfate,  
diquat or paraquat-dichloride;
- 30 - ureas:  
chlorbromuron, chlorotoluron, difenoxuron, dimefuron,  
diuron, ethidimuron, fenuron, fluometuron,  
isoproturon, isouron, linuron, methabenzthiazuron,  
methazole, metobenzuron, metoxuron, monolinuron,  
neburon, siduron or tebuthiuron;
- phenols:  
bromoxynil or ioxynil;
- chloridazon;
- triazines:

ametryn, atrazine, cyanazine, desmetryn, di-methamethryne, hexazinone, prometon, prometryn, propazine, simazine, simetryn, terbumeton, terbutryn, terbutylazine or trietazine;

5 - triazinones:

metamitron or metribuzine;

- uracils:

bromacil, lenacil or terbacil; or

- biscarbamates:

10 desmedipham or phenmedipham

or their environmentally compatible salts.

10. A synergistic herbicidal mixture as claimed in claim 9,  
15 comprising, as component C), at least one herbicidal com-  
pound from the group C1.

11. A synergistic herbicidal mixture as claimed in claim 10  
comprising, as component A) 4-[2-methyl-3-(4,5-dihydro-  
20 isoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-  
hydroxy-1H-pyrazole, as component B) the compound of for-  
mula II and as component C) a sulfonylureas from the group  
C1.

25 12. A synergistic herbicidal mixture as claimed in claim 10  
comprising, as component A) 4-[2-methyl-3-(4,5-dihydro-  
isoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-  
hydroxy-1H-pyrazole, as component B) the compound of for-  
mula II and as component C) rimsulfuron.

30 13. A synergistic herbicidal mixture as claimed in claim 9  
comprising, as component A) 4-[2-methyl-3-(4,5-dihydro-  
isoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-  
hydroxy-1H-pyrazole, as component B) the compound of for-  
35 mula II and as component C) a herbicidal compound from the  
group C2.

14. A synergistic herbicidal mixture as claimed in claim 13  
comprising, as component A) 4-[2-methyl-3-(4,5-dihydro-

isoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole, as component B) the compound of formula II and as component C) a chloroacetanilide from group C2.

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15. A synergistic herbicidal mixture as claimed in claim 13, comprising as component A) 4-[2-methyl-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole, as component B) the compound of formula II and as component C) dimethenamid or S-dimethenamid.
- 10
16. A synergistic herbicidal mixture as claimed in claim 9 comprising, as component A) 4-[2-methyl-3-(4,5-dihydro-isoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole, as component B) the compound of formula II and as component C) a herbicidal compound from the group C3.
- 15
17. A synergistic herbicidal mixture as claimed in claim 16 comprising, as component A) 4-[2-methyl-3-(4,5-dihydro-isoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole, as component B) the compound of formula II and as component C) a triazine from group C3.
- 20
25. 18. A synergistic herbicidal mixture as claimed in claim 16, comprising as component A) 4-[2-methyl-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole, as component B) the compound of formula II and as component C) atrazine.
- 30
35. 19. A synergistic herbicidal mixture as claimed in claim 16 comprising, as component A) 4-[2-methyl-3-(4,5-dihydro-isoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole, as component B) the compound of formula II and as component C) a benzothiadiazinone from group C3.
20. A synergistic herbicidal mixture as claimed in claim 16, comprising as component A) 4-[2-methyl-3-(4,5-dihydroisoxa-

zol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole, as component B) the compound of formula II and as component C) bentazone.

- 5 21. A synergistic herbicidal mixture as claimed in claim 9 comprising, as component A) 4-[2-methyl-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole, as component B) the compound of formula II and as component C) a herbicidal compound from the group C1 and a herbicidal compound from the C3.
- 10
22. A synergistic herbicidal mixture as claimed in claim 9, comprising as component A) 4-[2-methyl-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole, as component B) the compound of formula II and as component C) rimsulfuron and atrazine.
- 15
23. A synergistic herbicidal mixture as claimed in claim 9 comprising, as component A) 4-[2-methyl-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole, as component B) the compound of formula II and as component C) a herbicidal compound from the group C2 and a herbicidal compound from the C3.
- 20
- 25 24. A synergistic herbicidal mixture as claimed in claim 9, comprising as component A) 4-[2-methyl-3-(4,5-dihydroisoxazol-3-yl)-4-methylsulfonyl-benzoyl]-1-methyl-5-hydroxy-1H-pyrazole, as component B) the compound of formula II and as component C) dimethenamid and atrazine or S-dimethenamid and atrazine.
- 30
- 35 25. Synergistic herbicidal mixture as claimed in any of claims 1 to 24, wherein component A) and B) are present in a weight ratio of 1:0.001 to 1:500.
26. Synergistic herbicidal mixture as claimed in any of claims 1 to 25, wherein component A) and component C) are present in a weight ratio of 1:0.002 to 1:800.

27. A herbicidal composition comprising a herbicidally active amount of a synergistic herbicidal mixture as claimed in any of claims 1 to 26, at least one inert liquid and/or solid carrier and, if desired, at least one surfactant.

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28. A process for the preparation of herbicidal compositions as claimed in claim 27, wherein component A), component B) and component C), at least one inert liquid and/or solid carrier and, if appropriate, a surfactant are mixed.

10

29. A method of controlling undesired vegetation, which comprises applying a synergistic herbicidal mixture as claimed in any of claims 1 to 26 before, during and/or after the emergence of undesired plants, it being possible for the herbicidally active compounds of components A), B) and C) to be applied simultaneously or in succession.

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30. A method of controlling undesired vegetation as claimed in claim 29, wherein the leaves of the crop plants and of the undesired plants are treated.

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